EXHIBIT C

Exhibit A-21
Invalidity Claim Chart for U.S. Patent No. 7,924,802 vs. U.S. Patent No. 6,516,206

U.S. Patent No. 6,516,206 ("Jäntti") was filed on May 29, 2001, published on November 1, 2001 (U.S. Patent Application Publication No. 2001/0036842), and issued on February 4, 20023. Jäntti anticipates asserted claims 1–4, 6–10, 13, 14, 17, and 21–24 of U.S. Patent No. 7,924,802 ("the '802 Patent") under 35 U.S.C. § 102. Jäntti also renders obvious asserted claims 1–4, 6–10, 13, 14, 17, and 21–24 of the '802 Patent under 35 U.S.C. § 103, alone based on the state of the art and/or in combination with one or more other references identified in Exs. A-1–A-31, Cover Pleading, and First Supplemental Ex. A-Obviousness Chart.[1]

To the extent Plaintiff alleges that Jäntti does not disclose any particular limitation of the asserted claims in the '802 Patent, either expressly or inherently, it would have been obvious to a person of ordinary skill in the art as of the priority date of the '802 Patent to modify Jäntti and/or to combine the teachings of Jäntti with other prior art references, including but not limited to the present prior art references found in Exs. A-1–A-31, Cover Pleading, First Supplemental Ex. A-Obviousness Chart, and the relevant section of charts for other prior art for the '802 Patent in a manner that would render the asserted claims of these patents invalid as obvious.

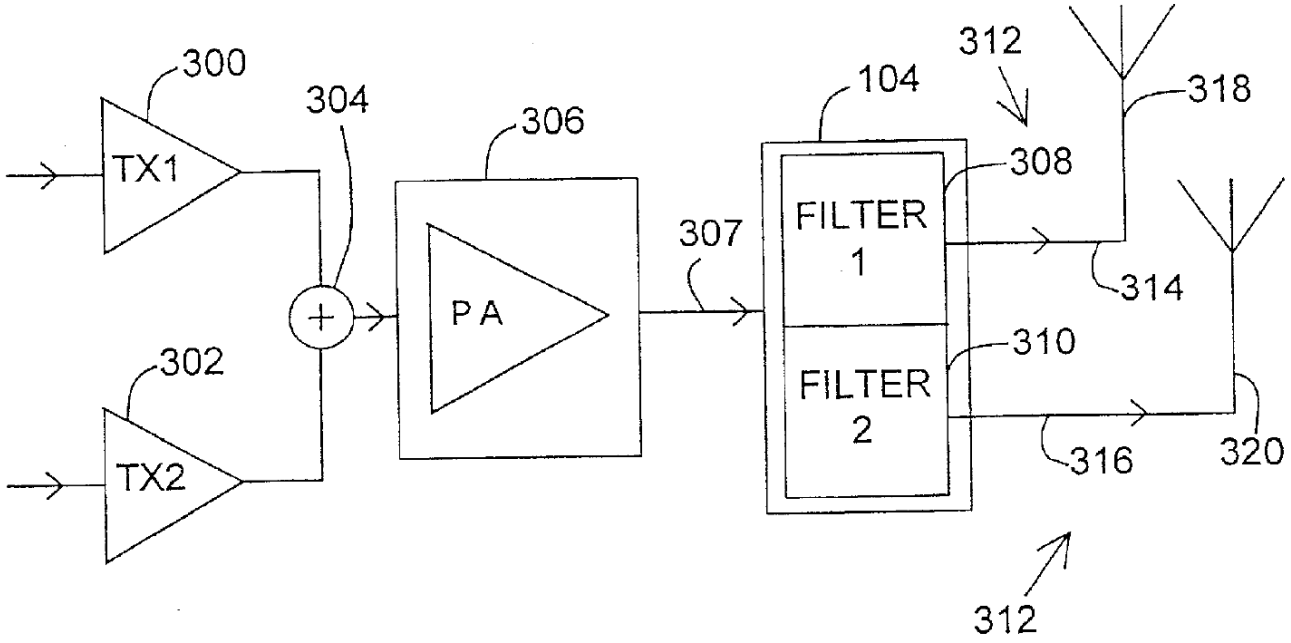
With respect to the obviousness of the asserted claims of the '802 Patent under 35 U.S.C. § 103, one or more of the principles enumerated by the United States Supreme Court in *KSR v. Teleflex*, 550 U.S. 398 (2007) apply, including: (a) combining various claimed elements known in the prior art according to known methods to yield a predictable result; and/or (b) making a simple substitution of one or more known elements for another to obtain a predictable result; and/or (c) using a known technique to improve a similar device or method in the same way; and/or (d) applying a known technique to a known device or method ready for improvement to yield a predictable result; and/or (e) choosing from a finite number of identified, predictable solutions with a reasonable expectation of success or, in other words, the solution was one which was "obvious to try"; and/or (f) a known work in one field of endeavor prompting variations of it for use either in the same field or a different field based on given design incentives or other market forces in which the variations were predictable to one of ordinary skill in the art; and/or (g) a teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill in the art to modify the prior art reference or to combine the teachings of various prior art references to arrive at the claimed invention. It therefore would have been obvious to one of ordinary skill in the art to combine the disclosures of these references in accordance with the principles and rationales set forth above.

[1] Samsung is investigating this prior art and has not yet completed discovery from third parties, who may have relevant information concerning the prior art, and therefore, Samsung reserves the right to supplement this chart after additional discovery is received. To the extent that any of the prior art discloses the same or similar functionality or feature(s) of any of the accused products, Samsung reserves the right to argue that said feature or functionality does not practice any limitation of any of the asserted claims, and to argue, in the alternative, that if said feature or functionality is found to practice any limitation of any of the asserted claims in the '802 Patent, then the prior art reference teaches the limitation and that the claim is not patentable.

The citations to portions of any reference in this chart are exemplary only. For example, a citation that refers to or discusses a figure or figure item should be understood to also incorporate by reference that figure and any additional descriptions of that figure as if set forth fully therein. Samsung reserves the right to rely on the entirety of the references cited in this chart to show that the asserted claims of the '802 Patent are invalid. Citations presented for one claim limitation are expressly incorporated by reference into all other limitations for that claim as well as all limitations of all claims on which that claim depends. Samsung also reserves the right to rely on additional citations or sources of evidence that also may be applicable, or that may become applicable in light of claim construction, changes in Plaintiff's infringement contentions, and/or information obtained during discovery as the case progresses.

Claim 1 of the '802 Patent	**Prior Art Reference – Jäntti**
[1.1] A method of transmitting information in a wireless communication channel comprising:	To the extent the preamble is limiting, Jäntti discloses "A method of transmitting information in a wireless communication channel comprising." See, e.g.: The base stations in a mobile system are usually sectored to enhance transceiver operation. In accordance with prior art, the transmitter functions of two sectors having different carriers are implemented with different transmitters. Each sector-specific transmitter comprises a transmitter unit, a power amplifier and a filter unit, and cables between these units. The drawbacks of said separate structures include high costs due to the amounts of components and different cables called for by the separate structures. The minimization of transmission losses requires large, and expensive, cables at the base station. Separate structures require relatively much space owing to the large size of the power amplifier, in particular. Radio systems based on the WCDMA technology require the use of expensive and complex linear amplifiers as power amplifiers in transmitter operation. The need for a separate linear amplifier for each transmitter is a significant drawback *See, e.g.*, Jäntti at 1:27-43. In a first preferred embodiment of the invention, shown in FIG. 3, the transmitter operation of two sectors is arranged in a centralized manner. The signal block 100 comprises for different sectors two transmitter units 300, 302 for generating the signals to be transmitted. Said signals generated by the different transmitter units have different frequencies. These different frequencies are typically implemented by generating in each transmitter unit for the signal a carrier that is on a different

Claim 1 of the '802 Patent	Prior Art Reference – Jäntti
	frequency than a carrier generated by another transmitter unit. The carrier is a wave with which a signal is modulated. In the modulation, the signal to be transmitted, including information, is combined with the carrier is the transmitter unit. When carriers are at different frequencies, they are typically on entirely different frequency ranges, or frequency bands. The method and arrangement of the invention typically utilizes the WCDMA technology, associated with which linear modulation is used in signal processing. Referring still to FIG. 3, the signals having different carrier frequencies and modulated by the transmitter units are combined in an adder in the transmitter block. The adder is typically of the Wilkinson type, such as a Wilkinson hybrid adder. After the combination, the signals are amplified in a multifrequency amplifier 304 acting as the power amplifier of the amplifier block 102. In a system according to the WCDMA technology, a linear amplifier is used as the power amplifier 306, which enables the simultaneous processing of several signals at different frequencies. Herein, simultaneity means that signals at different frequencies are combined into signals combined with for example the adder 304, as was described above. In a typical case according to the invention, the multifrequency amplifier thus simultaneously amplifies at least two combined signals at different carrier frequencies. *See, e.g.*, Jäntti at 4:62-5:27. Furthermore, this claim element is obvious in light of Jäntti itself, when combined with any of the other references as charted for this claim element in Exs. A-1–A-31, First Supplemental Ex. A-Obviousness Chart, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and First Supplemental Ex. A-Obviousness Chart.
[1.2] transmitting first information across a first frequency range using a wireless transmitter, the first	Jäntti discloses "transmitting first information across a first frequency range using a wireless transmitter, the first frequency range having a first center frequency, a first highest frequency, and a first lowest frequency." See, e.g.:

Claim 1 of the '802 Patent	Prior Art Reference – Jäntti
frequency range having a first center frequency, a first highest frequency, and a first lowest frequency; and	 FIG. 3 *See, e.g.*, Jäntti at Figure 3. The base stations in a mobile system are usually sectored to enhance transceiver operation. In accordance with prior art, the transmitter functions of two sectors having different carriers are implemented with different transmitters. Each sector-specific transmitter comprises a transmitter unit, a power amplifier and a filter unit, and cables between these units. The drawbacks of said separate structures include high costs due to the amounts of components and different cables called for by the

Claim 1 of the '802 Patent	Prior Art Reference – Jäntti
	separate structures. The minimization of transmission losses requires large, and expensive, cables at the base station. Separate structures require relatively much space owing to the large size of the power amplifier, in particular. Radio systems based on the WCDMA technology require the use of expensive and complex linear amplifiers as power amplifiers in transmitter operation. The need for a separate linear amplifier for each transmitter is a significant drawback *See, e.g.*, Jäntti at 1:27-43. In a first preferred embodiment of the invention, shown in FIG. 3, the transmitter operation of two sectors is arranged in a centralized manner. The signal block 100 comprises for different sectors two transmitter units 300, 302 for generating the signals to be transmitted. Said signals generated by the different transmitter units have different frequencies. These different frequencies are typically implemented by generating in each transmitter unit for the signal a carrier that is on a different frequency than a carrier generated by another transmitter unit. The carrier is a wave with which a signal is modulated. In the modulation, the signal to be transmitted, including information, is combined with the carrier is the transmitter unit. When carriers are at different frequencies, they are typically on entirely different frequency ranges, or frequency bands. The method and arrangement of the invention typically utilizes the WCDMA technology, associated with which linear modulation is used in signal processing. Referring still to FIG. 3, the signals having different carrier frequencies and modulated by the transmitter units are combined in an adder in the transmitter block. The adder is typically of the Wilkinson type, such as a Wilkinson hybrid adder. After the combination, the signals are amplified in a multifrequency amplifier 304 acting as the power amplifier of the amplifier block 102. In a system according to the WCDMA technology, a linear amplifier is used as the power amplifier 306, which enables the simultaneous processing of several signals at different frequencies. Herein, simultaneity means that signals at different frequencies are combined into signals combined with for example the adder 304, as was described above. In a typical case according to the invention, the multifrequency amplifier thus simultaneously amplifies at least two combined signals at different carrier frequencies. *See, e.g.*, Jäntti at 4:62-5:27.

Claim 1 of the '802 Patent	Prior Art Reference – Jäntti
	Furthermore, this claim element is obvious in light of Jäntti itself, when combined with any of the other references as charted for this claim element in Exs. A-1–A-31, First Supplemental Ex. A-Obviousness Chart, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and First Supplemental Ex. A-Obviousness Chart.
[1.3] simultaneously transmitting second information across a second frequency range using the same wireless transmitter, the second frequency range having a second center frequency greater than the first center frequency, a second highest frequency, and a second lowest frequency.	Jäntti discloses "simultaneously transmitting second information across a second frequency range using the same wireless transmitter, the second frequency range having a second center frequency greater than the first center frequency, a second highest frequency, and a second lowest frequency." See, e.g.:

Claim 1 of the '802 Patent	Prior Art Reference – Jäntti

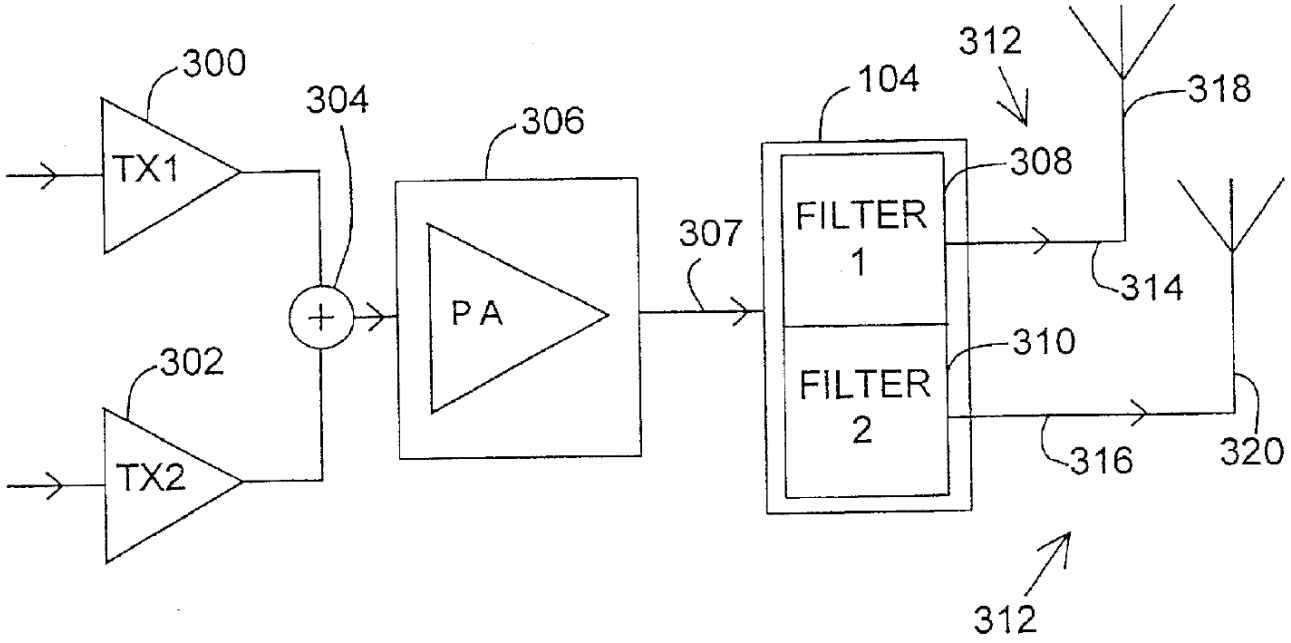


FIG. 3

See, e.g., Jäntti at Figure 3.

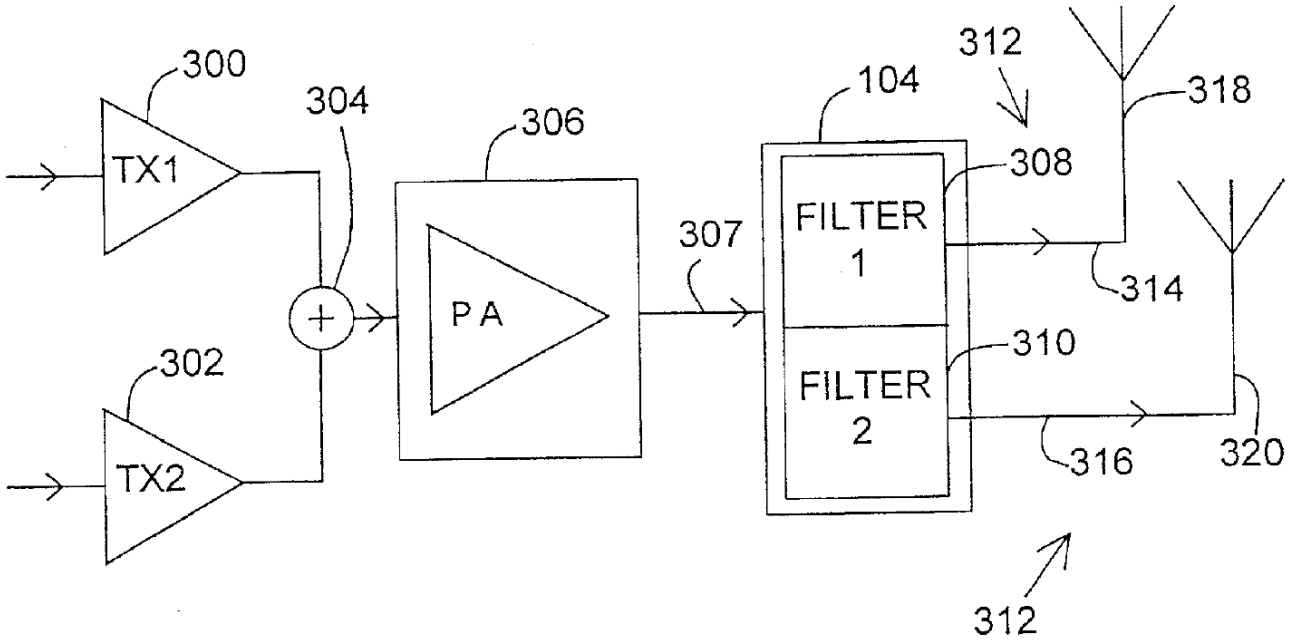
The base stations in a mobile system are usually sectored to enhance transceiver operation. In accordance with prior art, the transmitter functions of two sectors having different carriers are implemented with different transmitters. Each sector-specific transmitter comprises a transmitter unit, a power amplifier and a filter unit, and cables between these units. The drawbacks of said separate structures include high costs due to the amounts of components and different cables called for by the

Claim 1 of the '802 Patent	Prior Art Reference – Jäntti
	separate structures. The minimization of transmission losses requires large, and expensive, cables at the base station. Separate structures require relatively much space owing to the large size of the power amplifier, in particular. Radio systems based on the WCDMA technology require the use of expensive and complex linear amplifiers as power amplifiers in transmitter operation. The need for a separate linear amplifier for each transmitter is a significant drawback *See, e.g.*, Jäntti at 1:27-43. In a first preferred embodiment of the invention, shown in FIG. 3, the transmitter operation of two sectors is arranged in a centralized manner. The signal block 100 comprises for different sectors two transmitter units 300, 302 for generating the signals to be transmitted. Said signals generated by the different transmitter units have different frequencies. These different frequencies are typically implemented by generating in each transmitter unit for the signal a carrier that is on a different frequency than a carrier generated by another transmitter unit. The carrier is a wave with which a signal is modulated. In the modulation, the signal to be transmitted, including information, is combined with the carrier is the transmitter unit. When carriers are at different frequencies, they are typically on entirely different frequency ranges, or frequency bands. The method and arrangement of the invention typically utilizes the WCDMA technology, associated with which linear modulation is used in signal processing. Referring still to FIG. 3, the signals having different carrier frequencies and modulated by the transmitter units are combined in an adder in the transmitter block. The adder is typically of the Wilkinson type, such as a Wilkinson hybrid adder. After the combination, the signals are amplified in a multifrequency amplifier 304 acting as the power amplifier of the amplifier block 102. In a system according to the WCDMA technology, a linear amplifier is used as the power amplifier 306, which enables the simultaneous processing of several signals at different frequencies. Herein, simultaneity means that signals at different frequencies are combined into signals combined with for example the adder 304, as was described above. In a typical case according to the invention, the multifrequency amplifier thus simultaneously amplifies at least two combined signals at different carrier frequencies. *See, e.g.*, Jäntti at 4:62-5:27.

Claim 1 of the '802 Patent	Prior Art Reference – Jäntti
	Furthermore, this claim element is obvious in light of Jäntti itself, when combined with any of the other references as charted for this claim element in Exs. A-1–A-31, First Supplemental Ex. A-Obviousness Chart, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and First Supplemental Ex. A-Obviousness Chart.

Claim 2 of the '802 Patent	Prior Art Reference – Jäntti
[2.1] The method of claim 1	Jäntti discloses all the elements of claim 1 for all the reasons provided above.
[2.2] wherein frequency difference between the first center frequency and the second center frequency is greater than the sum of one-half the first frequency range and one-half the second frequency range.	Jäntti discloses "wherein frequency difference between the first center frequency and the second center frequency is greater than the sum of one-half the first frequency range and one-half the second frequency range." Furthermore, this claim element is obvious in light of Jäntti itself, when combined with any of the other references as charted for this claim element in Exs. A-1–A-31, First Supplemental Ex. A-Obviousness Chart, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and First Supplemental Ex. A-Obviousness Chart.

Claim 3 of the '802 Patent	Prior Art Reference – Jäntti
[3.1] The method of claim 1	Jäntti discloses all the elements of claim 1 for all the reasons provided above.
[3.2] wherein the first and second information are	Jäntti discloses "wherein the first and second information are transmitted using the same power amplifier in said wireless transmitter." See, e.g.:

Claim 3 of the '802 Patent	Prior Art Reference – Jäntti
transmitted using the same power amplifier in said wireless transmitter.	 FIG. 3 *See, e.g.*, Jäntti at Figure 3. The base stations in a mobile system are usually sectored to enhance transceiver operation. In accordance with prior art, the transmitter functions of two sectors having different carriers are implemented with different transmitters. Each sector-specific transmitter comprises a transmitter unit, a power amplifier and a filter unit, and cables between these units. The drawbacks of said separate

Claim 3 of the '802 Patent	Prior Art Reference – Jäntti
	structures include high costs due to the amounts of components and different cables called for by the separate structures. The minimization of transmission losses requires large, and expensive, cables at the base station. Separate structures require relatively much space owing to the large size of the power amplifier, in particular. Radio systems based on the WCDMA technology require the use of expensive and complex linear amplifiers as power amplifiers in transmitter operation. The need for a separate linear amplifier for each transmitter is a significant drawback *See, e.g.*, Jäntti at 1:27-43. In a first preferred embodiment of the invention, shown in FIG. 3, the transmitter operation of two sectors is arranged in a centralized manner. The signal block 100 comprises for different sectors two transmitter units 300, 302 for generating the signals to be transmitted. Said signals generated by the different transmitter units have different frequencies. These different frequencies are typically implemented by generating in each transmitter unit for the signal a carrier that is on a different frequency than a carrier generated by another transmitter unit. The carrier is a wave with which a signal is modulated. In the modulation, the signal to be transmitted, including information, is combined with the carrier is the transmitter unit. When carriers are at different frequencies, they are typically on entirely different frequency ranges, or frequency bands. The method and arrangement of the invention typically utilizes the WCDMA technology, associated with which linear modulation is used in signal processing. Referring still to FIG. 3, the signals having different carrier frequencies and modulated by the transmitter units are combined in an adder in the transmitter block. The adder is typically of the Wilkinson type, such as a Wilkinson hybrid adder. After the combination, the signals are amplified in a multifrequency amplifier 304 acting as the power amplifier of the amplifier block 102. In a system according to the WCDMA technology, a linear amplifier is used as the power amplifier 306, which enables the simultaneous processing of several signals at different frequencies. Herein, simultaneity means that signals at different frequencies are combined into signals combined with for example the adder 304, as was described above. In a typical case according to the invention, the multifrequency amplifier thus simultaneously amplifies at least two combined signals at different carrier frequencies.

Claim 3 of the '802 Patent	Prior Art Reference – Jäntti
	See, e.g., Jäntti at 4:62-5:27. Furthermore, this claim element is obvious in light of Jäntti itself, when combined with any of the other references as charted for this claim element in Exs. A-1–A-31, First Supplemental Ex. A-Obviousness Chart, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and First Supplemental Ex. A-Obviousness Chart.

Claim 4 of the '802 Patent	Prior Art Reference – Jäntti
[4.1] The method of claim 3	Jäntti discloses all the elements of claim 3 for all the reasons provided above.
[4.2] wherein the bandwidth of said power amplifier is greater than the difference between the first lowest frequency and the second highest frequency.	Jäntti discloses "wherein the bandwidth of said power amplifier is greater than the difference between the first lowest frequency and the second highest frequency." See, e.g.:

Claim 4 of the '802 Patent	Prior Art Reference – Jäntti

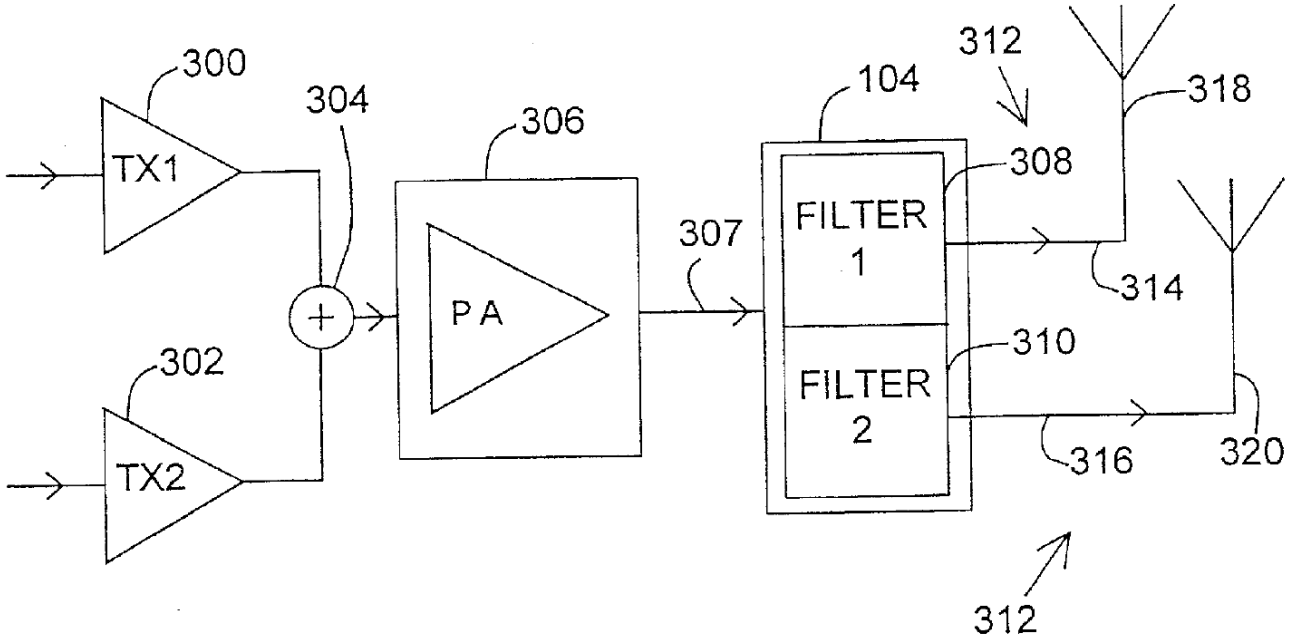


FIG. 3

See, e.g., Jäntti at Figure 3.

The base stations in a mobile system are usually sectored to enhance transceiver operation. In accordance with prior art, the transmitter functions of two sectors having different carriers are implemented with different transmitters. Each sector-specific transmitter comprises a transmitter unit, a power amplifier and a filter unit, and cables between these units. The drawbacks of said separate structures include high costs due to the amounts of components and different cables called for by the

Claim 4 of the '802 Patent	Prior Art Reference – Jäntti
	separate structures. The minimization of transmission losses requires large, and expensive, cables at the base station. Separate structures require relatively much space owing to the large size of the power amplifier, in particular. Radio systems based on the WCDMA technology require the use of expensive and complex linear amplifiers as power amplifiers in transmitter operation. The need for a separate linear amplifier for each transmitter is a significant drawback *See, e.g.*, Jäntti at 1:27-43. In a first preferred embodiment of the invention, shown in FIG. 3, the transmitter operation of two sectors is arranged in a centralized manner. The signal block 100 comprises for different sectors two transmitter units 300, 302 for generating the signals to be transmitted. Said signals generated by the different transmitter units have different frequencies. These different frequencies are typically implemented by generating in each transmitter unit for the signal a carrier that is on a different frequency than a carrier generated by another transmitter unit. The carrier is a wave with which a signal is modulated. In the modulation, the signal to be transmitted, including information, is combined with the carrier is the transmitter unit. When carriers are at different frequencies, they are typically on entirely different frequency ranges, or frequency bands. The method and arrangement of the invention typically utilizes the WCDMA technology, associated with which linear modulation is used in signal processing. Referring still to FIG. 3, the signals having different carrier frequencies and modulated by the transmitter units are combined in an adder in the transmitter block. The adder is typically of the Wilkinson type, such as a Wilkinson hybrid adder. After the combination, the signals are amplified in a multifrequency amplifier 304 acting as the power amplifier of the amplifier block 102. In a system according to the WCDMA technology, a linear amplifier is used as the power amplifier 306, which enables the simultaneous processing of several signals at different frequencies. Herein, simultaneity means that signals at different frequencies are combined into signals combined with for example the adder 304, as was described above. In a typical case according to the invention, the multifrequency amplifier thus simultaneously amplifies at least two combined signals at different carrier frequencies. *See, e.g.*, Jäntti at 4:62-5:27.

Claim 4 of the '802 Patent	Prior Art Reference – Jäntti
	Furthermore, this claim element is obvious in light of Jäntti itself, when combined with any of the other references as charted for this claim element in Exs. A-1–A-31, First Supplemental Ex. A-Obviousness Chart, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and First Supplemental Ex. A-Obviousness Chart.

Claim 6 of the '802 Patent	Prior Art Reference – Jäntti
[6.1] The method of claim 1	Jäntti discloses all the elements of claim 1 for all the reasons provided above.
[6.2] wherein the first information corresponds to a first wireless protocol and the second information corresponds to a second wireless protocol.	Jäntti discloses "wherein the first information corresponds to a first wireless protocol and the second information corresponds to a second wireless protocol." Furthermore, this claim element is obvious in light of Jäntti itself, when combined with any of the other references as charted for this claim element in Exs. A-1–A-31, First Supplemental Ex. A-Obviousness Chart, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and First Supplemental Ex. A-Obviousness Chart.

Claim 7 of the '802 Patent	Prior Art Reference – Jäntti
[7.1] The method of claim 1	Jäntti discloses all the elements of claim 1 for all the reasons provided above.
[7.2] wherein the first information and the second information are the same data	Jäntti discloses "wherein the first information and the second information are the same data transmitted across two different frequencies."

Claim 7 of the '802 Patent	Prior Art Reference – Jäntti
transmitted across two different frequencies.	Furthermore, this claim element is obvious in light of Jäntti itself, when combined with any of the other references as charted for this claim element in Exs. A-1–A-31, First Supplemental Ex. A-Obviousness Chart, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and First Supplemental Ex. A-Obviousness Chart.

Claim 8 of the '802 Patent	Prior Art Reference – Jäntti
[8.1] The method of claim 1	Jäntti discloses all the elements of claim 1 for all the reasons provided above.
[8.2] wherein the first information and the second information are from the same data stream.	Jäntti discloses "wherein the first information and the second information are from the same data stream." Furthermore, this claim element is obvious in light of Jäntti itself, when combined with any of the other references as charted for this claim element in Exs. A-1–A-31, First Supplemental Ex. A-Obviousness Chart, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and First Supplemental Ex. A-Obviousness Chart.

Claim 9 of the '802 Patent	Prior Art Reference – Jäntti
[9.1] The method of claim 1	Jäntti discloses all the elements of claim 1 for all the reasons provided above.
[9.2] wherein first information and second information comprise a plurality of OFDM symbols, wherein a first	Jäntti discloses "wherein first information and second information comprise a plurality of OFDM symbols, wherein a first symbol is transmitted during a first time slot across the first frequency range and a second symbol is transmitted during the first time slot across the second frequency range, and

Claim 9 of the '802 Patent	Prior Art Reference – Jäntti
symbol is transmitted during a first time slot across the first frequency range and a second symbol is transmitted during the first time slot across the second frequency range, and wherein a third symbol is transmitted during a second time slot across the first frequency range and a fourth symbol is transmitted during the second time slot across a second frequency range.	wherein a third symbol is transmitted during a second time slot across the first frequency range and a fourth symbol is transmitted during the second time slot across a second frequency range." Furthermore, this claim element is obvious in light of Jäntti itself, when combined with any of the other references as charted for this claim element in Exs. A-1–A-31, First Supplemental Ex. A-Obviousness Chart, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and First Supplemental Ex. A-Obviousness Chart.

Claim 10 of the '802 Patent	Prior Art Reference – Jäntti
[10.1] A method of transmitting information in a wireless communication channel comprising:	To the extent the preamble is limiting, Jäntti discloses "A method of transmitting information in a wireless communication channel comprising." Furthermore, this claim element is obvious in light of Jäntti itself, when combined with any of the other references as charted for this claim element in Exs. A-1–A-31, First Supplemental Ex. A-Obviousness Chart, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and First Supplemental Ex. A-Obviousness Chart.
[10.2] receiving a first digital signal comprising first data to be transmitted;	Jäntti discloses "receiving a first digital signal comprising first data to be transmitted."

Claim 10 of the '802 Patent	Prior Art Reference – Jäntti
	Furthermore, this claim element is obvious in light of Jäntti itself, when combined with any of the other references as charted for this claim element in Exs. A-1–A-31, First Supplemental Ex. A-Obviousness Chart, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and First Supplemental Ex. A-Obviousness Chart.
[10.3] receiving a second digital signal comprising second data to be transmitted;	Jäntti discloses "receiving a second digital signal comprising second data to be transmitted." Furthermore, this claim element is obvious in light of Jäntti itself, when combined with any of the other references as charted for this claim element in Exs. A-1–A-31, First Supplemental Ex. A-Obviousness Chart, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and First Supplemental Ex. A-Obviousness Chart.
[10.4] converting the first digital signal into a first analog signal using a first digital-to-analog converter, the first analog signal carrying the first data across a first frequency range;.	Jäntti discloses "converting the first digital signal into a first analog signal using a first digital-to-analog converter, the first analog signal carrying the first data across a first frequency range." Furthermore, this claim element is obvious in light of Jäntti itself, when combined with any of the other references as charted for this claim element in Exs. A-1–A-31, First Supplemental Ex. A-Obviousness Chart, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and First Supplemental Ex. A-Obviousness Chart.
[10.5] converting the second digital signal into a second analog signal using a second digital-to-analog converter, the second analog signal	Jäntti discloses "converting the second digital signal into a second analog signal using a second digital-to-analog converter, the second analog signal carrying the second data across a second frequency range."

Claim 10 of the '802 Patent	Prior Art Reference – Jäntti
carrying the second data across a second frequency range;	Furthermore, this claim element is obvious in light of Jäntti itself, when combined with any of the other references as charted for this claim element in Exs. A-1–A-31, First Supplemental Ex. A-Obviousness Chart, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and First Supplemental Ex. A-Obviousness Chart.
[10.6] up-converting the first analog signal to a first RF center frequency to produce a first up-converted analog signal, wherein the first up-converted analog signal comprises a first up-converted frequency range from the first RF center frequency minus one-half the first frequency range to the first RF center frequency plus one-half the first frequency range;	Jäntti discloses "up-converting the first analog signal to a first RF center frequency to produce a first up-converted analog signal, wherein the first up-converted analog signal comprises a first up-converted frequency range from the first RF center frequency minus one-half the first frequency range to the first RF center frequency plus one-half the first frequency range." Furthermore, this claim element is obvious in light of Jäntti itself, when combined with any of the other references as charted for this claim element in Exs. A-1–A-31, First Supplemental Ex. A-Obviousness Chart, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and First Supplemental Ex. A-Obviousness Chart.
[10.7] up-converting the second analog signal to a second RF center frequency greater than the first center RF frequency to produce a second up-converted analog signal, wherein the second up-converted analog signal comprises a second up-converted frequency range from the second RF center	Jäntti discloses "up-converting the second analog signal to a second RF center frequency greater than the first center RF frequency to produce a second up-converted analog signal, wherein the second up-converted analog signal comprises a second up-converted frequency range from the second RF center frequency minus one-half the second frequency range to the second RF center frequency plus one-half the second frequency range, and wherein a frequency difference between the first RF center frequency and the second RF center frequency is greater than the sum of one-half the first frequency range and one-half the second frequency range." Furthermore, this claim element is obvious in light of Jäntti itself, when combined with any of the other references as charted for this claim element in Exs. A-1–A-31, First Supplemental Ex. A-Obviousness Chart, and/or when combined with the knowledge of one of ordinary skill in the art.

Claim 10 of the '802 Patent	Prior Art Reference – Jäntti
frequency minus one-half the second frequency range to the second RF center frequency plus one-half the second frequency range, and wherein a frequency difference between the first RF center frequency and the second RF center frequency is greater than the sum of one-half the first frequency range and one-half the second frequency range;	Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and First Supplemental Ex. A-Obviousness Chart.
[10.8] combining the first up-converted analog signal and the second up-converted analog signal to produce a combined up-converted signal;	Jäntti discloses "combining the first up-converted analog signal and the second up-converted analog signal to produce a combined up-converted signal." See, e.g.:

Claim 10 of the '802 Patent	Prior Art Reference – Jäntti

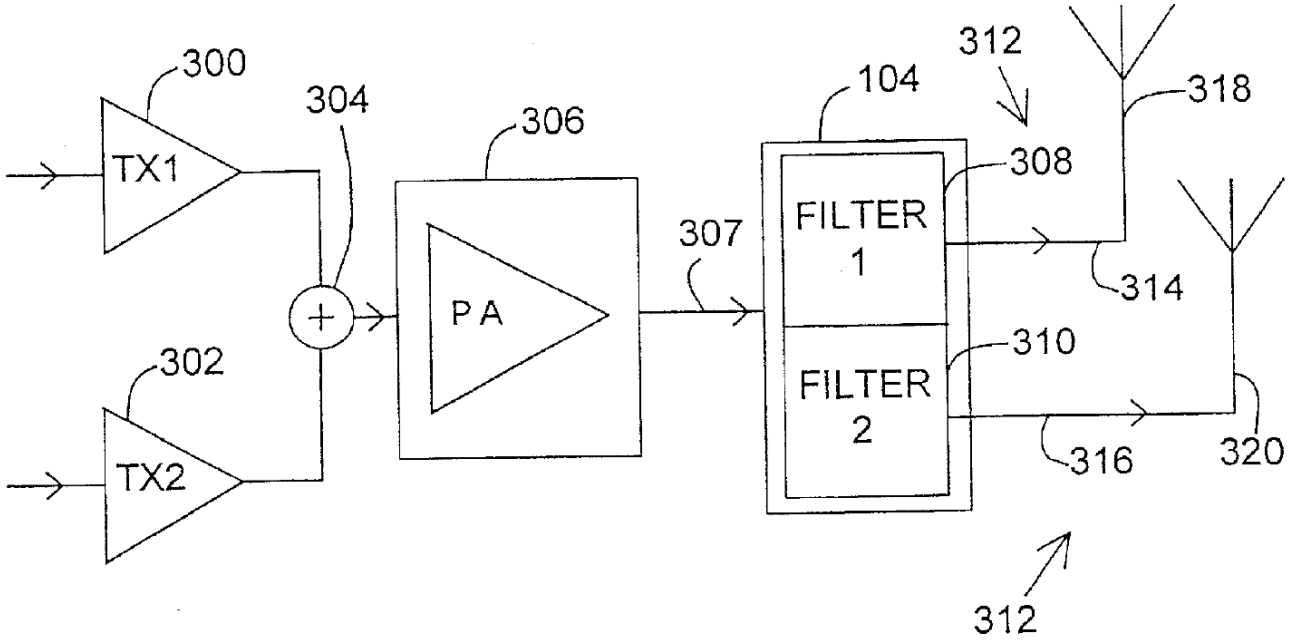


FIG. 3

See, e.g., Jäntti at Figure 3.

The base stations in a mobile system are usually sectored to enhance transceiver operation. In accordance with prior art, the transmitter functions of two sectors having different carriers are implemented with different transmitters. Each sector-specific transmitter comprises a transmitter unit, a power amplifier and a filter unit, and cables between these units. The drawbacks of said separate structures include high costs due to the amounts of components and different cables called for by the

Claim 10 of the '802 Patent	Prior Art Reference – Jäntti
	separate structures. The minimization of transmission losses requires large, and expensive, cables at the base station. Separate structures require relatively much space owing to the large size of the power amplifier, in particular. Radio systems based on the WCDMA technology require the use of expensive and complex linear amplifiers as power amplifiers in transmitter operation. The need for a separate linear amplifier for each transmitter is a significant drawback *See, e.g.*, Jäntti at 1:27-43. In a first preferred embodiment of the invention, shown in FIG. 3, the transmitter operation of two sectors is arranged in a centralized manner. The signal block 100 comprises for different sectors two transmitter units 300, 302 for generating the signals to be transmitted. Said signals generated by the different transmitter units have different frequencies. These different frequencies are typically implemented by generating in each transmitter unit for the signal a carrier that is on a different frequency than a carrier generated by another transmitter unit. The carrier is a wave with which a signal is modulated. In the modulation, the signal to be transmitted, including information, is combined with the carrier is the transmitter unit. When carriers are at different frequencies, they are typically on entirely different frequency ranges, or frequency bands. The method and arrangement of the invention typically utilizes the WCDMA technology, associated with which linear modulation is used in signal processing. Referring still to FIG. 3, the signals having different carrier frequencies and modulated by the transmitter units are combined in an adder in the transmitter block. The adder is typically of the Wilkinson type, such as a Wilkinson hybrid adder. After the combination, the signals are amplified in a multifrequency amplifier 304 acting as the power amplifier of the amplifier block 102. In a system according to the WCDMA technology, a linear amplifier is used as the power amplifier 306, which enables the simultaneous processing of several signals at different frequencies. Herein, simultaneity means that signals at different frequencies are combined into signals combined with for example the adder 304, as was described above. In a typical case according to the invention, the multifrequency amplifier thus simultaneously amplifies at least two combined signals at different carrier frequencies. *See, e.g.*, Jäntti at 4:62-5:27.

Claim 10 of the '802 Patent	Prior Art Reference – Jäntti
	Furthermore, this claim element is obvious in light of Jäntti itself, when combined with any of the other references as charted for this claim element in Exs. A-1–A-31, First Supplemental Ex. A-Obviousness Chart, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and First Supplemental Ex. A-Obviousness Chart.
[10.9] amplifying the combined up-converted signal in a power amplifier resulting in an amplified combined up-converted signal; and	Jäntti discloses "amplifying the combined up-converted signal in a power amplifier resulting in an amplified combined up-converted signal." See, e.g.:

Claim 10 of the '802 Patent	Prior Art Reference – Jäntti

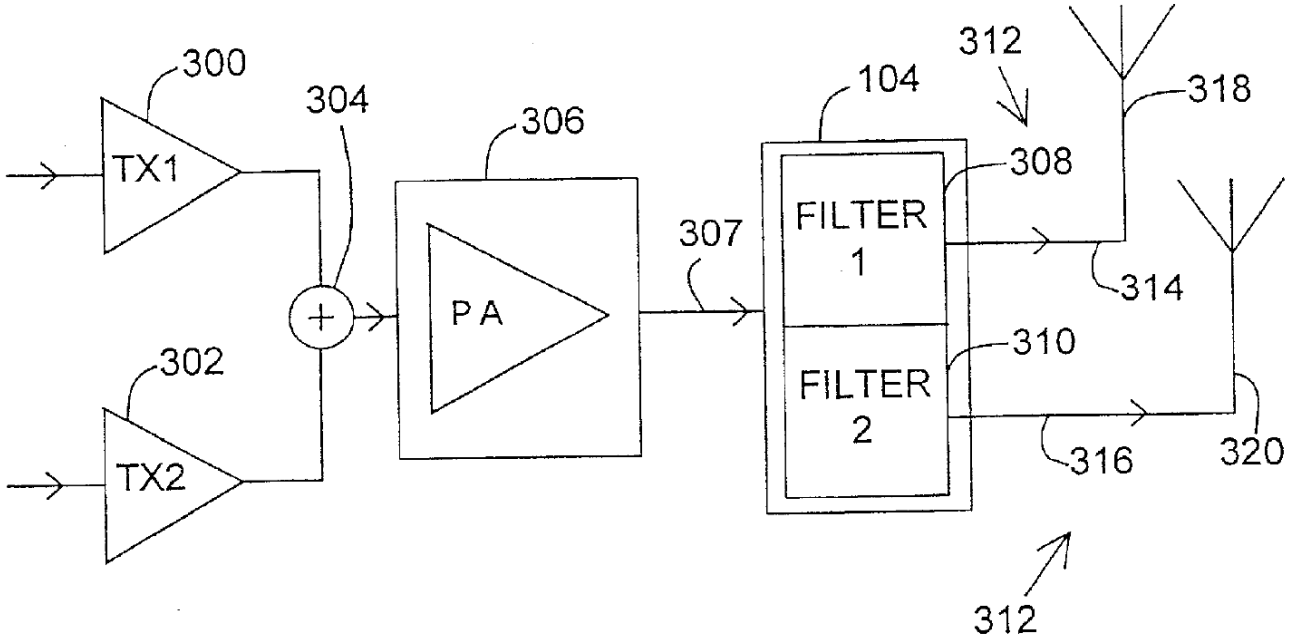


FIG. 3

See, e.g., Jäntti at Figure 3.

The base stations in a mobile system are usually sectored to enhance transceiver operation. In accordance with prior art, the transmitter functions of two sectors having different carriers are implemented with different transmitters. Each sector-specific transmitter comprises a transmitter unit, a power amplifier and a filter unit, and cables between these units. The drawbacks of said separate structures include high costs due to the amounts of components and different cables called for by the

Claim 10 of the '802 Patent	Prior Art Reference – Jäntti
	separate structures. The minimization of transmission losses requires large, and expensive, cables at the base station. Separate structures require relatively much space owing to the large size of the power amplifier, in particular. Radio systems based on the WCDMA technology require the use of expensive and complex linear amplifiers as power amplifiers in transmitter operation. The need for a separate linear amplifier for each transmitter is a significant drawback *See, e.g.*, Jäntti at 1:27-43. In a first preferred embodiment of the invention, shown in FIG. 3, the transmitter operation of two sectors is arranged in a centralized manner. The signal block 100 comprises for different sectors two transmitter units 300, 302 for generating the signals to be transmitted. Said signals generated by the different transmitter units have different frequencies. These different frequencies are typically implemented by generating in each transmitter unit for the signal a carrier that is on a different frequency than a carrier generated by another transmitter unit. The carrier is a wave with which a signal is modulated. In the modulation, the signal to be transmitted, including information, is combined with the carrier is the transmitter unit. When carriers are at different frequencies, they are typically on entirely different frequency ranges, or frequency bands. The method and arrangement of the invention typically utilizes the WCDMA technology, associated with which linear modulation is used in signal processing. Referring still to FIG. 3, the signals having different carrier frequencies and modulated by the transmitter units are combined in an adder in the transmitter block. The adder is typically of the Wilkinson type, such as a Wilkinson hybrid adder. After the combination, the signals are amplified in a multifrequency amplifier 304 acting as the power amplifier of the amplifier block 102. In a system according to the WCDMA technology, a linear amplifier is used as the power amplifier 306, which enables the simultaneous processing of several signals at different frequencies. Herein, simultaneity means that signals at different frequencies are combined into signals combined with for example the adder 304, as was described above. In a typical case according to the invention, the multifrequency amplifier thus simultaneously amplifies at least two combined signals at different carrier frequencies. *See, e.g.*, Jäntti at 4:62-5:27.

Claim 10 of the '802 Patent	Prior Art Reference – Jäntti
	Furthermore, this claim element is obvious in light of Jäntti itself, when combined with any of the other references as charted for this claim element in Exs. A-1–A-31, First Supplemental Ex. A-Obviousness Chart, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and First Supplemental Ex. A-Obviousness Chart.
[10.10] transmitting the amplified combined up-converted signal on a first antenna,	Jäntti discloses "transmitting the amplified combined up-converted signal on a first antenna." See, e.g.:

Claim 10 of the '802 Patent	Prior Art Reference – Jäntti

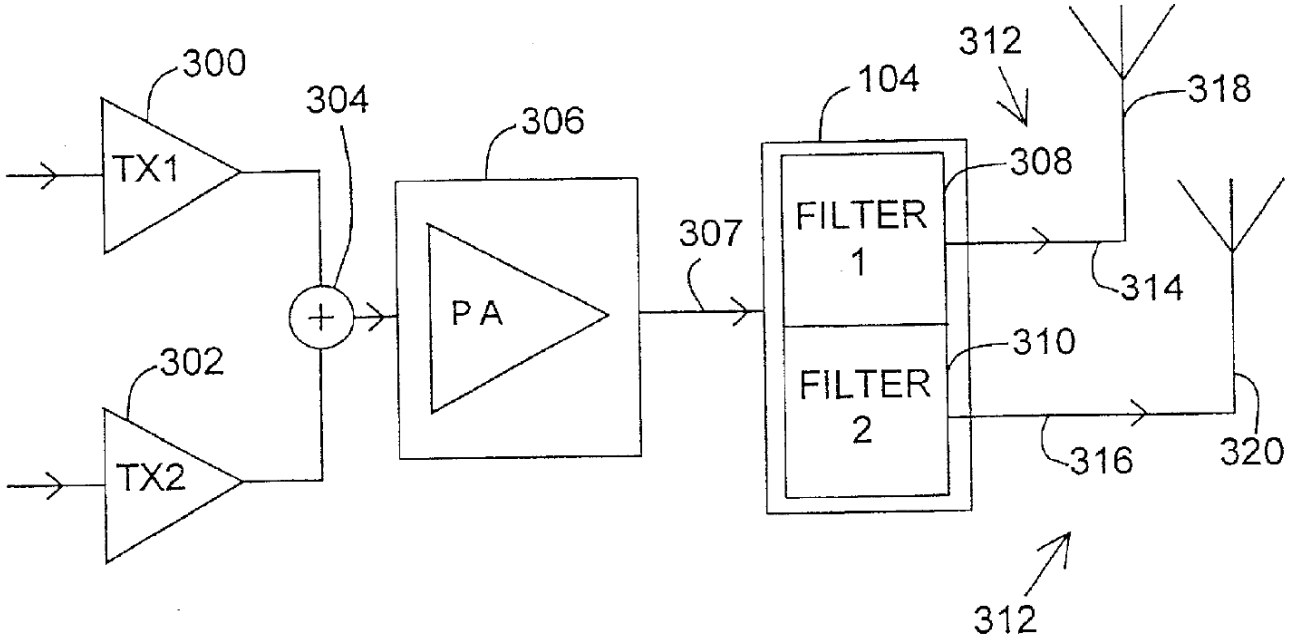


FIG. 3

See, e.g., Jäntti at Figure 3.

The base stations in a mobile system are usually sectored to enhance transceiver operation. In accordance with prior art, the transmitter functions of two sectors having different carriers are implemented with different transmitters. Each sector-specific transmitter comprises a transmitter unit, a power amplifier and a filter unit, and cables between these units. The drawbacks of said separate structures include high costs due to the amounts of components and different cables called for by the

Claim 10 of the '802 Patent	Prior Art Reference – Jäntti
	separate structures. The minimization of transmission losses requires large, and expensive, cables at the base station. Separate structures require relatively much space owing to the large size of the power amplifier, in particular. Radio systems based on the WCDMA technology require the use of expensive and complex linear amplifiers as power amplifiers in transmitter operation. The need for a separate linear amplifier for each transmitter is a significant drawback *See, e.g.*, Jäntti at 1:27-43. In a first preferred embodiment of the invention, shown in FIG. 3, the transmitter operation of two sectors is arranged in a centralized manner. The signal block 100 comprises for different sectors two transmitter units 300, 302 for generating the signals to be transmitted. Said signals generated by the different transmitter units have different frequencies. These different frequencies are typically implemented by generating in each transmitter unit for the signal a carrier that is on a different frequency than a carrier generated by another transmitter unit. The carrier is a wave with which a signal is modulated. In the modulation, the signal to be transmitted, including information, is combined with the carrier is the transmitter unit. When carriers are at different frequencies, they are typically on entirely different frequency ranges, or frequency bands. The method and arrangement of the invention typically utilizes the WCDMA technology, associated with which linear modulation is used in signal processing. Referring still to FIG. 3, the signals having different carrier frequencies and modulated by the transmitter units are combined in an adder in the transmitter block. The adder is typically of the Wilkinson type, such as a Wilkinson hybrid adder. After the combination, the signals are amplified in a multifrequency amplifier 304 acting as the power amplifier of the amplifier block 102. In a system according to the WCDMA technology, a linear amplifier is used as the power amplifier 306, which enables the simultaneous processing of several signals at different frequencies. Herein, simultaneity means that signals at different frequencies are combined into signals combined with for example the adder 304, as was described above. In a typical case according to the invention, the multifrequency amplifier thus simultaneously amplifies at least two combined signals at different carrier frequencies. *See, e.g.*, Jäntti at 4:62-5:27.

Claim 10 of the '802 Patent	Prior Art Reference – Jäntti
	Furthermore, this claim element is obvious in light of Jäntti itself, when combined with any of the other references as charted for this claim element in Exs. A-1–A-31, First Supplemental Ex. A-Obviousness Chart, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and First Supplemental Ex. A-Obviousness Chart.
[10.11] wherein the bandwidth of said power amplifier is greater than the difference between a lowest frequency in the first up-converted frequency range and a highest frequency in the second up-converted frequency range.	Jäntti discloses "wherein the bandwidth of said power amplifier is greater than the difference between a lowest frequency in the first up-converted frequency range and a highest frequency in the second up-converted frequency range." See, e.g.:

Claim 10 of the '802 Patent	Prior Art Reference – Jäntti

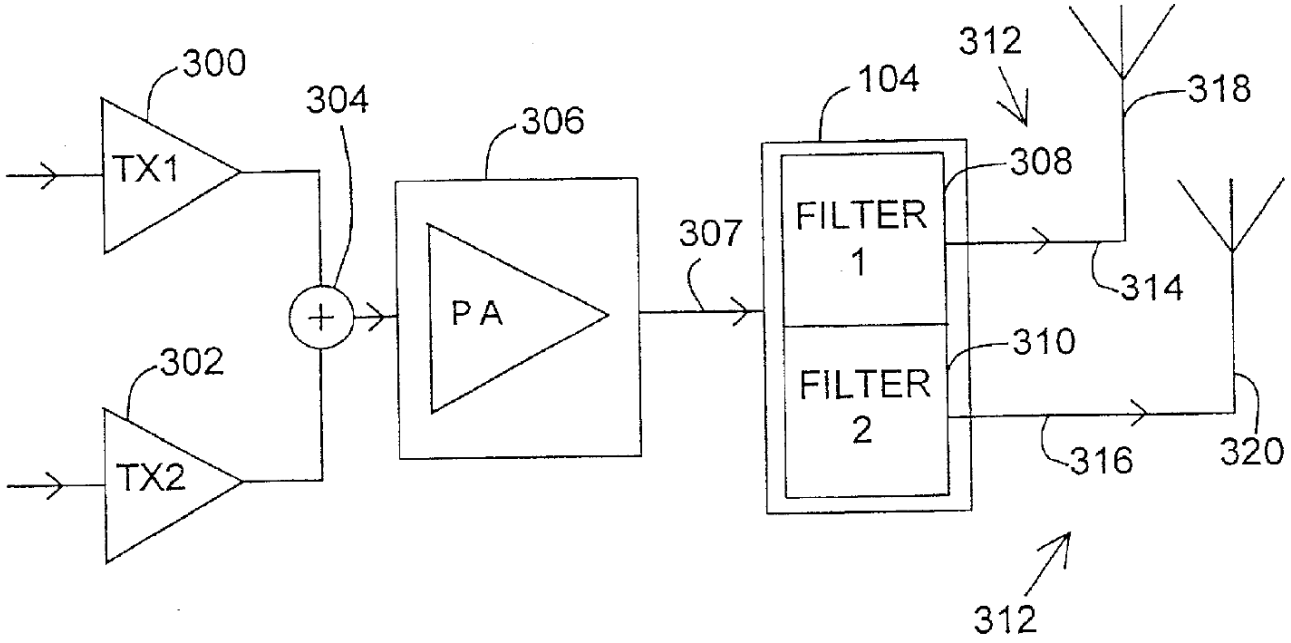


FIG. 3

See, e.g., Jäntti at Figure 3.

The base stations in a mobile system are usually sectored to enhance transceiver operation. In accordance with prior art, the transmitter functions of two sectors having different carriers are implemented with different transmitters. Each sector-specific transmitter comprises a transmitter unit, a power amplifier and a filter unit, and cables between these units. The drawbacks of said separate structures include high costs due to the amounts of components and different cables called for by the

Claim 10 of the '802 Patent	Prior Art Reference – Jäntti
	separate structures. The minimization of transmission losses requires large, and expensive, cables at the base station. Separate structures require relatively much space owing to the large size of the power amplifier, in particular. Radio systems based on the WCDMA technology require the use of expensive and complex linear amplifiers as power amplifiers in transmitter operation. The need for a separate linear amplifier for each transmitter is a significant drawback *See, e.g.*, Jäntti at 1:27-43. In a first preferred embodiment of the invention, shown in FIG. 3, the transmitter operation of two sectors is arranged in a centralized manner. The signal block 100 comprises for different sectors two transmitter units 300, 302 for generating the signals to be transmitted. Said signals generated by the different transmitter units have different frequencies. These different frequencies are typically implemented by generating in each transmitter unit for the signal a carrier that is on a different frequency than a carrier generated by another transmitter unit. The carrier is a wave with which a signal is modulated. In the modulation, the signal to be transmitted, including information, is combined with the carrier is the transmitter unit. When carriers are at different frequencies, they are typically on entirely different frequency ranges, or frequency bands. The method and arrangement of the invention typically utilizes the WCDMA technology, associated with which linear modulation is used in signal processing. Referring still to FIG. 3, the signals having different carrier frequencies and modulated by the transmitter units are combined in an adder in the transmitter block. The adder is typically of the Wilkinson type, such as a Wilkinson hybrid adder. After the combination, the signals are amplified in a multifrequency amplifier 304 acting as the power amplifier of the amplifier block 102. In a system according to the WCDMA technology, a linear amplifier is used as the power amplifier 306, which enables the simultaneous processing of several signals at different frequencies. Herein, simultaneity means that signals at different frequencies are combined into signals combined with for example the adder 304, as was described above. In a typical case according to the invention, the multifrequency amplifier thus simultaneously amplifies at least two combined signals at different carrier frequencies. *See, e.g.*, Jäntti at 4:62-5:27.

Claim 10 of the '802 Patent	Prior Art Reference – Jäntti
	Furthermore, this claim element is obvious in light of Jäntti itself, when combined with any of the other references as charted for this claim element in Exs. A-1–A-31, First Supplemental Ex. A-Obviousness Chart, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and First Supplemental Ex. A-Obviousness Chart.

Claim 13 of the '802 Patent	Prior Art Reference – Jäntti
[13.1] The method of claim 10	Jäntti discloses all the elements of claim 10 for all the reasons provided above.
[13.2] wherein the first digital signal is encoded using a first wireless protocol and the second digital signal is encoded using a second wireless protocol.	Jäntti discloses "wherein the first digital signal is encoded using a first wireless protocol and the second digital signal is encoded using a second wireless protocol." Furthermore, this claim element is obvious in light of Jäntti itself, when combined with any of the other references as charted for this claim element in Exs. A-1–A-31, First Supplemental Ex. A-Obviousness Chart, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and First Supplemental Ex. A-Obviousness Chart.

Claim 14 of the '802 Patent	Prior Art Reference – Jäntti
[14.1] The method of claim 10	Jäntti discloses all the elements of claim 10 for all the reasons provided above.
[14.2] wherein the second data is the same as the first	Jäntti discloses "wherein the second data is the same as the first data, the method further comprising."

Claim 14 of the '802 Patent	Prior Art Reference – Jäntti
data, the method further comprising:	Furthermore, this claim element is obvious in light of Jäntti itself, when combined with any of the other references as charted for this claim element in Exs. A-1–A-31, First Supplemental Ex. A-Obviousness Chart, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and First Supplemental Ex. A-Obviousness Chart.
[14.3] receiving the transmitted signal on a second antenna;	Jäntti discloses "receiving the transmitted signal on a second antenna." Furthermore, this claim element is obvious in light of Jäntti itself, when combined with any of the other references as charted for this claim element in Exs. A-1–A-31, First Supplemental Ex. A-Obviousness Chart, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and First Supplemental Ex. A-Obviousness Chart.
[14.4] amplifying the received signal in a low noise amplifier resulting in an amplified received up-converted signal, wherein the bandwidth of said low noise amplifier is greater than the difference between the lowest frequency in the first up-converted frequency range and the highest frequency in the second up-converted frequency range;	Jäntti discloses "amplifying the received signal in a low noise amplifier resulting in an amplified received up-converted signal, wherein the bandwidth of said low noise amplifier is greater than the difference between the lowest frequency in the first up-converted frequency range and the highest frequency in the second up-converted frequency range." Furthermore, this claim element is obvious in light of Jäntti itself, when combined with any of the other references as charted for this claim element in Exs. A-1–A-31, First Supplemental Ex. A-Obviousness Chart, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and First Supplemental Ex. A-Obviousness Chart.
[14.5] down-converting the amplified received up-converted signal using a first	Jäntti discloses "down-converting the amplified received up-converted signal using a first down-converter and a signal corresponding to the first RF center frequency to produce a fourth analog signal corresponding to the first analog signal."

Claim 14 of the '802 Patent	Prior Art Reference – Jäntti
down-converter and a signal corresponding to the first RF center frequency to produce a fourth analog signal corresponding to the first analog signal; and	Furthermore, this claim element is obvious in light of Jäntti itself, when combined with any of the other references as charted for this claim element in Exs. A-1–A-31, First Supplemental Ex. A-Obviousness Chart, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and First Supplemental Ex. A-Obviousness Chart.
[14.6] down-converting the amplified received up-converted analog signal using a second down-converter and a signal corresponding to the second RF center frequency to produce a fifth analog signal corresponding to the second analog signal.	Jäntti discloses "down-converting the amplified received up-converted analog signal using a second down-converter and a signal corresponding to the second RF center frequency to produce a fifth analog signal corresponding to the second analog signal." Furthermore, this claim element is obvious in light of Jäntti itself, when combined with any of the other references as charted for this claim element in Exs. A-1–A-31, First Supplemental Ex. A-Obviousness Chart, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and First Supplemental Ex. A-Obviousness Chart.

Claim 17 of the '802 Patent	Prior Art Reference – Jäntti
[17.1] A wireless communication system comprising:	To the extent the preamble is limiting, Jäntti discloses "A wireless communication system comprising." See, e.g.:

Claim 17 of the '802 Patent	Prior Art Reference – Jäntti

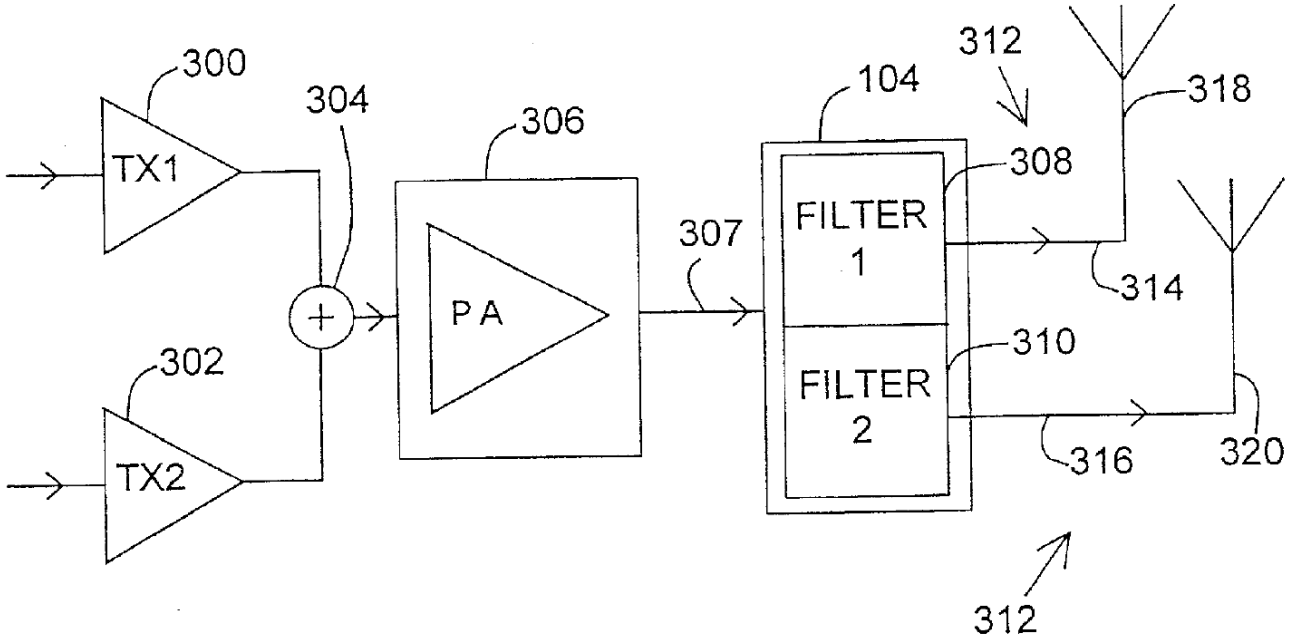


FIG. 3

See, e.g., Jäntti at Figure 3.

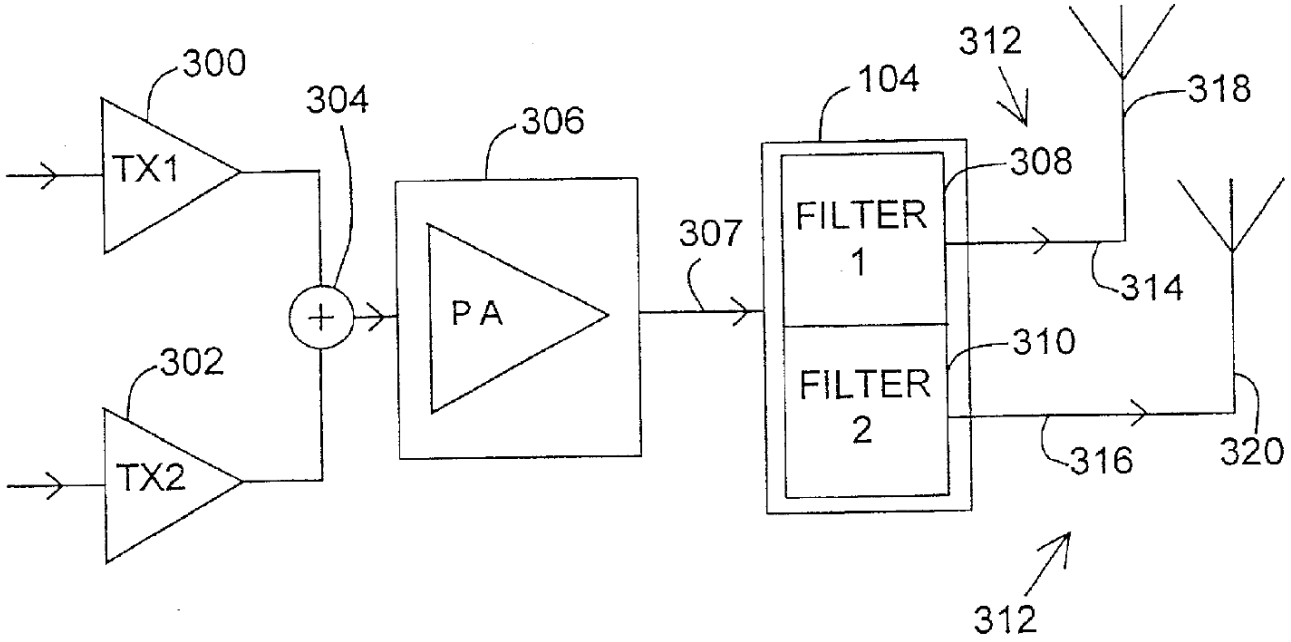
The base stations in a mobile system are usually sectored to enhance transceiver operation. In accordance with prior art, the transmitter functions of two sectors having different carriers are implemented with different transmitters. Each sector-specific transmitter comprises a transmitter unit, a power amplifier and a filter unit, and cables between these units. The drawbacks of said separate structures include high costs due to the amounts of components and different cables called for by the

Claim 17 of the '802 Patent	Prior Art Reference – Jäntti
	separate structures. The minimization of transmission losses requires large, and expensive, cables at the base station. Separate structures require relatively much space owing to the large size of the power amplifier, in particular. Radio systems based on the WCDMA technology require the use of expensive and complex linear amplifiers as power amplifiers in transmitter operation. The need for a separate linear amplifier for each transmitter is a significant drawback *See, e.g.*, Jäntti at 1:27-43. In a first preferred embodiment of the invention, shown in FIG. 3, the transmitter operation of two sectors is arranged in a centralized manner. The signal block 100 comprises for different sectors two transmitter units 300, 302 for generating the signals to be transmitted. Said signals generated by the different transmitter units have different frequencies. These different frequencies are typically implemented by generating in each transmitter unit for the signal a carrier that is on a different frequency than a carrier generated by another transmitter unit. The carrier is a wave with which a signal is modulated. In the modulation, the signal to be transmitted, including information, is combined with the carrier is the transmitter unit. When carriers are at different frequencies, they are typically on entirely different frequency ranges, or frequency bands. The method and arrangement of the invention typically utilizes the WCDMA technology, associated with which linear modulation is used in signal processing. Referring still to FIG. 3, the signals having different carrier frequencies and modulated by the transmitter units are combined in an adder in the transmitter block. The adder is typically of the Wilkinson type, such as a Wilkinson hybrid adder. After the combination, the signals are amplified in a multifrequency amplifier 304 acting as the power amplifier of the amplifier block 102. In a system according to the WCDMA technology, a linear amplifier is used as the power amplifier 306, which enables the simultaneous processing of several signals at different frequencies. Herein, simultaneity means that signals at different frequencies are combined into signals combined with for example the adder 304, as was described above. In a typical case according to the invention, the multifrequency amplifier thus simultaneously amplifies at least two combined signals at different carrier frequencies. *See, e.g.*, Jäntti at 4:62-5:27.

Claim 17 of the '802 Patent	Prior Art Reference – Jäntti
	Furthermore, this claim element is obvious in light of Jäntti itself, when combined with any of the other references as charted for this claim element in Exs. A-1–A-31, First Supplemental Ex. A-Obviousness Chart, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and First Supplemental Ex. A-Obviousness Chart.
[17.2] a baseband digital system for providing a first digital signal comprising a first data to be transmitted and a second digital signal comprising a second data to be transmitted;	Jäntti discloses "a baseband digital system for providing a first digital signal comprising a first data to be transmitted and a second digital signal comprising a second data to be transmitted." Furthermore, this claim element is obvious in light of Jäntti itself, when combined with any of the other references as charted for this claim element in Exs. A-1–A-31, First Supplemental Ex. A-Obviousness Chart, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and First Supplemental Ex. A-Obviousness Chart.
[17.3] a first digital-to-analog converter for receiving the first digital signal and converting the first digital signal into a first analog signal, the first analog signal carrying the first data across a first frequency range;	Jäntti discloses "a first digital-to-analog converter for receiving the first digital signal and converting the first digital signal into a first analog signal, the first analog signal carrying the first data across a first frequency range." Furthermore, this claim element is obvious in light of Jäntti itself, when combined with any of the other references as charted for this claim element in Exs. A-1–A-31, First Supplemental Ex. A-Obviousness Chart, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and First Supplemental Ex. A-Obviousness Chart.

Claim 17 of the '802 Patent	Prior Art Reference – Jäntti
[17.4] a second digital-to-analog converter for receiving the second digital signal and converting the second digital signal into a second analog signal, the second analog signal carrying the second data across a second frequency range;	Jäntti discloses "a second digital-to-analog converter for receiving the second digital signal and converting the second digital signal into a second analog signal, the second analog signal carrying the second data across a second frequency range." Furthermore, this claim element is obvious in light of Jäntti itself, when combined with any of the other references as charted for this claim element in Exs. A-1–A-31, First Supplemental Ex. A-Obviousness Chart, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and First Supplemental Ex. A-Obviousness Chart.
[17.5] a first up-converter circuit having a first input coupled to receive the first analog signal and a second input coupled to receive a first modulation signal having a first RF frequency, wherein the first up-converter outputs a first up-converted analog signal comprising a first up-converted frequency range from the first RF frequency minus one-half the first frequency range to the first RF frequency plus one-half the first frequency range;	Jäntti discloses "a first up-converter circuit having a first input coupled to receive the first analog signal and a second input coupled to receive a first modulation signal having a first RF frequency, wherein the first up-converter outputs a first up-converted analog signal comprising a first up-converted frequency range from the first RF frequency minus one-half the first frequency range to the first RF frequency plus one-half the first frequency range." Furthermore, this claim element is obvious in light of Jäntti itself, when combined with any of the other references as charted for this claim element in Exs. A-1–A-31, First Supplemental Ex. A-Obviousness Chart, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and First Supplemental Ex. A-Obviousness Chart.
[17.6] a second up-converter circuit having a first input coupled to receive the second analog signal and a second	Jäntti discloses "a second up-converter circuit having a first input coupled to receive the second analog signal and a second input coupled to receive a second modulation signal having a second RF frequency, wherein the second up-converter outputs a second up-converted analog signal comprising a second up-converted frequency range from the second RF frequency minus one-half the second

Claim 17 of the '802 Patent	Prior Art Reference – Jäntti
input coupled to receive a second modulation signal having a second RF frequency, wherein the second up-converter outputs a second up-converted analog signal comprising a second up-converted frequency range from the second RF frequency minus one-half the second frequency range to the second RF frequency plus one-half the second frequency range, and wherein frequency difference between the first RF frequency and the second RF frequency is greater than the sum of one-half the first frequency range and one-half the second frequency range; and	frequency range to the second RF frequency plus one-half the second frequency range, and wherein frequency difference between the first RF frequency and the second RF frequency is greater than the sum of one-half the first frequency range and one-half the second frequency range." Furthermore, this claim element is obvious in light of Jäntti itself, when combined with any of the other references as charted for this claim element in Exs. A-1–A-31, First Supplemental Ex. A-Obviousness Chart, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and First Supplemental Ex. A-Obviousness Chart.
[17.7] a power amplifier coupled to receive the first and second up-converted analog signals, wherein the bandwidth of the power amplifier is greater than the difference between a lowest frequency in the first up-converted frequency range and a highest frequency in the	Jäntti discloses "a power amplifier coupled to receive the first and second up-converted analog signals, wherein the bandwidth of the power amplifier is greater than the difference between a lowest frequency in the first up-converted frequency range and a highest frequency in the second up-converted frequency range." See, e.g.:

Claim 17 of the '802 Patent	Prior Art Reference – Jäntti
second up-converted frequency range.	 FIG. 3 *See, e.g.*, Jäntti at Figure 3. The base stations in a mobile system are usually sectored to enhance transceiver operation. In accordance with prior art, the transmitter functions of two sectors having different carriers are implemented with different transmitters. Each sector-specific transmitter comprises a transmitter unit, a power amplifier and a filter unit, and cables between these units. The drawbacks of said separate structures include high costs due to the amounts of components and different cables called for by the

Claim 17 of the '802 Patent	Prior Art Reference – Jäntti
	separate structures. The minimization of transmission losses requires large, and expensive, cables at the base station. Separate structures require relatively much space owing to the large size of the power amplifier, in particular. Radio systems based on the WCDMA technology require the use of expensive and complex linear amplifiers as power amplifiers in transmitter operation. The need for a separate linear amplifier for each transmitter is a significant drawback *See, e.g.*, Jäntti at 1:27-43. In a first preferred embodiment of the invention, shown in FIG. 3, the transmitter operation of two sectors is arranged in a centralized manner. The signal block 100 comprises for different sectors two transmitter units 300, 302 for generating the signals to be transmitted. Said signals generated by the different transmitter units have different frequencies. These different frequencies are typically implemented by generating in each transmitter unit for the signal a carrier that is on a different frequency than a carrier generated by another transmitter unit. The carrier is a wave with which a signal is modulated. In the modulation, the signal to be transmitted, including information, is combined with the carrier is the transmitter unit. When carriers are at different frequencies, they are typically on entirely different frequency ranges, or frequency bands. The method and arrangement of the invention typically utilizes the WCDMA technology, associated with which linear modulation is used in signal processing. Referring still to FIG. 3, the signals having different carrier frequencies and modulated by the transmitter units are combined in an adder in the transmitter block. The adder is typically of the Wilkinson type, such as a Wilkinson hybrid adder. After the combination, the signals are amplified in a multifrequency amplifier 304 acting as the power amplifier of the amplifier block 102. In a system according to the WCDMA technology, a linear amplifier is used as the power amplifier 306, which enables the simultaneous processing of several signals at different frequencies. Herein, simultaneity means that signals at different frequencies are combined into signals combined with for example the adder 304, as was described above. In a typical case according to the invention, the multifrequency amplifier thus simultaneously amplifies at least two combined signals at different carrier frequencies. *See, e.g.*, Jäntti at 4:62-5:27.

Claim 17 of the '802 Patent	Prior Art Reference – Jäntti
	Furthermore, this claim element is obvious in light of Jäntti itself, when combined with any of the other references as charted for this claim element in Exs. A-1–A-31, First Supplemental Ex. A-Obviousness Chart, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and First Supplemental Ex. A-Obviousness Chart.

Claim 21 of the '802 Patent	Prior Art Reference – Jäntti
[21.1] The communication system of claim 17	Jäntti discloses all the elements of claim 17 for all the reasons provided above.
[21.2] wherein the first data of the first digital signal is encoded using a first wireless protocol and the first data of the second digital signal is encoded using a second wireless protocol.	Jäntti discloses "wherein the first data of the first digital signal is encoded using a first wireless protocol and the first data of the second digital signal is encoded using a second wireless protocol." Furthermore, this claim element is obvious in light of Jäntti itself, when combined with any of the other references as charted for this claim element in Exs. A-1–A-31, First Supplemental Ex. A-Obviousness Chart, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and First Supplemental Ex. A-Obviousness Chart.

Claim 22 of the '802 Patent	Prior Art Reference – Jäntti
[22.1] The communication system of claim 17	Jäntti discloses all the elements of claim 17 for all the reasons provided above.
[22.2] wherein the second data corresponds to the first data and wherein the power	Jäntti discloses "wherein the second data corresponds to the first data and wherein the power amplifier outputs a third up-converted signal comprising the up-converted first analog signal and the up-converted second analog signal."

Claim 22 of the '802 Patent	Prior Art Reference – Jäntti
amplifier outputs a third up-converted signal comprising the up-converted first analog signal and the up-converted second analog signal.	Furthermore, this claim element is obvious in light of Jäntti itself, when combined with any of the other references as charted for this claim element in Exs. A-1–A-31, First Supplemental Ex. A-Obviousness Chart, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and First Supplemental Ex. A-Obviousness Chart.

Claim 23 of the '802 Patent	Prior Art Reference – Jäntti
[23.1] The communication system of claim 17	Jäntti discloses all the elements of claim 17 for all the reasons provided above.
[23.2] wherein first and second data to be transmitted comprise a plurality of OFDM symbols, wherein a first symbol is transmitted during a first time slot across the first up-converted frequency range and a second symbol is transmitted during the first time slot across the second up-converted frequency range, and wherein a third symbol is transmitted during a second time slot across the first up-converted frequency range and a fourth symbol is transmitted during the second	Jäntti discloses "wherein first and second data to be transmitted comprise a plurality of OFDM symbols, wherein a first symbol is transmitted during a first time slot across the first up-converted frequency range and a second symbol is transmitted during the first time slot across the second up-converted frequency range, and wherein a third symbol is transmitted during a second time slot across the first up-converted frequency range and a fourth symbol is transmitted during the second time slot across a second up-converted frequency range." Furthermore, this claim element is obvious in light of Jäntti itself, when combined with any of the other references as charted for this claim element in Exs. A-1–A-31, First Supplemental Ex. A-Obviousness Chart, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and First Supplemental Ex. A-Obviousness Chart.

Claim 23 of the '802 Patent	Prior Art Reference – Jäntti
time slot across a second up-converted frequency range.	

Claim 24 of the '802 Patent	Prior Art Reference – Jäntti
[24.1] An electronic circuit comprising:	To the extent the preamble is limiting, Jäntti discloses "An electronic circuit comprising." Furthermore, this claim element is obvious in light of Jäntti itself, when combined with any of the other references as charted for this claim element in Exs. A-1–A-31, First Supplemental Ex. A-Obviousness Chart, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and First Supplemental Ex. A-Obviousness Chart.
[24.2] a first down-converter circuit having a first input coupled to receive a first up-converted signal, a second input coupled to receive a first demodulation signal having a first RF frequency, and an output, wherein the first down-converter circuit outputs a first down-converted signal on the first down-converter output;	Jäntti discloses "a first down-converter circuit having a first input coupled to receive a first up-converted signal, a second input coupled to receive a first demodulation signal having a first RF frequency, and an output, wherein the first down-converter circuit outputs a first down-converted signal on the first down-converter output." Furthermore, this claim element is obvious in light of Jäntti itself, when combined with any of the other references as charted for this claim element in Exs. A-1–A-31, First Supplemental Ex. A-Obviousness Chart, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and First Supplemental Ex. A-Obviousness Chart.
[24.3] a second down-converter circuit having a first input coupled to receive the	Jäntti discloses "a second down-converter circuit having a first input coupled to receive the first up-converted signal, a second input coupled to receive a second demodulation signal having a second RF frequency different than the first RF frequency, and an output, wherein the second down-converter

Claim 24 of the '802 Patent	Prior Art Reference – Jäntti
first up-converted signal, a second input coupled to receive a second demodulation signal having a second RF frequency different than the first RF frequency, and an output, wherein the second down-converter outputs a second down-converted signal on the second down-converter output, wherein the first up-converted signal comprises a first signal modulated at the first RF frequency and a second signal modulated at the second RF frequency; and	outputs a second down-converted signal on the second down-converter output, wherein the first up-converted signal comprises a first signal modulated at the first RF frequency and a second signal modulated at the second RF frequency." Furthermore, this claim element is obvious in light of Jäntti itself, when combined with any of the other references as charted for this claim element in Exs. A-1–A-31, First Supplemental Ex. A-Obviousness Chart, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and First Supplemental Ex. A-Obviousness Chart.
[24.4] a filter having an input coupled to the output of the first down-converter and the output of the second down-converter, and in accordance therewith, the filter receives the first and second down-converted signals.	Jäntti discloses "a filter having an input coupled to the output of the first down-converter and the output of the second down-converter, and in accordance therewith, the filter receives the first and second down-converted signals." Furthermore, this claim element is obvious in light of Jäntti itself, when combined with any of the other references as charted for this claim element in Exs. A-1–A-31, First Supplemental Ex. A-Obviousness Chart, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and First Supplemental Ex. A-Obviousness Chart.